

# Technology and Vocational Educational Reform in the Russian Federation

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A mere generation ago it seemed that life in the East and life in the West would never meet. However, those of us living in the developed Western nations have stood back in amazement in the last dozen years as we have witnessed the collapse and restructuring of Soviet society. As the former U.S.S.R. republics establish new independent societies based on once-abhorred democratic governmental principles, their leaders face problems that were virtually unknown to them during the Soviet era. In an effort to curtail hyperinflation, unemployment, a rising crime rate, and a drastic shortage of housing for their citizens, these countries have looked to the Russian Federation as an exemplar of what solutions the future might hold.

To respond to its own needs and to set an example for the other republics, the Russian government announced its goal to lift its economy and technical prowess to a level that exists in the Western developed nations. While such a goal is to be applauded, we should remember that the West did not achieve its economic levels and technological capabilities overnight. Indeed, the developed nations of the West have a history of progressive financial and technological development that stretches over many generations.

Well aware of their shortcomings, and believing that the restructuring of a society rests on a foundation of knowledge, Russian educators have begun to address the issue of reform within the realm of technical and vocational education. These educators have a vision of Russia's place as a partner in the global economy where their nation will be a peer with Western nations and not a poor country cousin. In the early days of Perestroika, Russians realized that a reformation in their schools must take place.

While schools in the United States, Canada, and Britain (to name just a few) have evolved through the curricula of manual arts and industrial arts to technology education, the schools of the former Soviet republics have made little provision for the technical training of their students. Public schools historically made only a meager effort in the areas of home economics and crafts to satisfy the industrial arts needs of their pupils.

The failure of the Soviet schools to offer industrial arts and home economics on a universal scale was not due to the lack of funds or an inability to deliver such instruction. Rather,

the absence of any well-defined curricula was due to the priorities that Soviet educators established as a result of the political system that existed throughout the Soviet era. Time spent in manual training and home concerns was seen as a detriment to the established education, which required students to concentrate on the sciences, math, and political ideology.

However, it would be incorrect for us to place all of Russia's poor educational policies on the Soviets alone. The educational history of Russia is fraught with decisions that led the general populous away from education on many occasions. Russian educators have continually struggled with the problem of creating an educated and technically competent workforce within the borders of Russia since the days of Peter the Great.

Today, reform of Russia's schools is the aim of most Russian legislators and educators. While some resistance to these changes naturally exists, the need to bring Russian technology and vocational education into line with the abilities of the West is evident to the government at large. Reforms that would realign the levels of expertise within trades, lengthen the years of general education, establish new curricula, and develop new courses of study have all been proposed in an effort to elevate Russia's international stature. Professionals within the educational system have acknowledged that local demands within society must be addressed and that the technology education which students have been lacking is paramount to the needs of Russia's changing society.

## THE MARKET ECONOMY AND SCHOOLS

Initially, the concept of teaching students the principles and values of a market economy was indeed a strange departure for most Soviet educators. Since the days of Lenin, teachers and students alike had been indoctrinated to believe that the pursuit of money was contradictory to socialist norms. Money was not to be associated with work, but was to be used only as a yardstick by which to gauge production; work was not to be considered as a means toward economic reward, but only as a symbol of social duty (Nazimov, 1993).

With Russia, the great bastion of socialism, shifting to a market economy under the direction of Gorbachev, the schools were faced with the prospect of teaching subjects and

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ideologies that were only a short time before forbidden and considered decadent. Teachers began to face problems in their classes that were theretofore unheard of. As Nazimov (1993) said:

It was not long ago that the task of the schools was to provide a narrow occupation to everyone receiving a secondary education. Now however, we have “swung” to the other side; we have conceived the notion of nurturing a reasonable, reflective, nimble-tongued but not-very-adroit, conceited erudite who shies away from labor. For this one-sided approach, this “pendulum-type” pedagogy, we are now paying with young men and women whose souls are empty, who are all too quick to make arrogant demands on society, and are mired in dependency, mindless amusements and disrespect toward their elders. To be sure, the causes of these misfortunes are not to be sought solely in deformations of school pedagogy. Their scope is much broader and deeper: the mistakes and oversights of our past, the missteps and contradictions of the restructuring that is going in the country. (p. 59)

If schools were now going to be responsible for teaching the principles of a market economy, then the secondary schools would have to change their approach to how they educated their charges. Education could no longer emphasize the narrow job specific skills characteristic of work that has remained since the era of Stalin. Indeed, education would now have to reflect more of a “whole life” approach in the classroom (Kitaev, 1993). Schools would now have to abandon the idea of training people for task specific jobs and adopt a more global view of the world in which their students were going to live. Concerning the role that secondary education would play in preparing these new workers, Shipunov (1993) wrote:

Secondary specialized education will be directly involved in the creation of the labor market, and hence we will have to reckon with the rules of the game in this market, accept its conditions, and take account of the competitive struggle among sectors and educational institutions for the trademark and the quality of the specialist’s value. We will have to determine very carefully the parameters of intake and output and take account of the qualitative composition of secondary school graduates, their general education foundation, academic achievement, proportion of sexes, and so on. (p. 39)

Many schools tried as they might during the initial stages of Perestroika to follow the lead of the Program of the Twenty-Eighth Communist Party of the Soviet Union Congress. The Congress had supported the move toward economic reforms when it proclaimed that the

market economy would make it possible to revive the love of labor in the young and old of Russia. One school in the Altai Territory proposed a project to raise food that would be sold at market. After the excellent harvest, students were not content to see their efforts lie on the ground and rot and appealed to the Collective Farm Board in their district for assistance in getting their produce to market. The teachers and students soon saw that their call for help was in vain as the board did nothing to help them. A delegation from the school then went directly to the district center and was able to persuade those in charge to lend them the necessary transportation. Such an action was very unusual by Russian bureaucratic standards—not simply because the system eventually worked for them, but because the students were engaged in every aspect of the crop’s production and sale instead of one narrow aspect of it (Nazimov, 1993).

The frustrations felt by the students in the Altai school parallel problems experienced by other schools throughout Russia. However, while problems associated with Russia’s infrastructure were, at best, exasperating, most of the problems associated with changing the educational philosophies within Russian schools lay in the difference of opinions between students and their instructors. As Kitaev (1993) explained:

Middle-aged and older teachers and parent communities in general are reluctant to change their behavior and continue to cherish socialist values and the “command” centrally planned economy. Being less faithful to Soviet values and more socially mobile the younger generation is adapting better and faster to the new democratic and market environment. Though rather passive in the political sphere, they [young people] are increasingly active in grassroots business. (pp. 27–28)

As the project in the Altai Territory demonstrated, most students were certainly capable of learning and implementing the principles of a market system. But, the perception of a free market system that was still based on the old socialist view (i.e., that all enterprises are state owned and operated) held many schools back. As Pogodzinski and Antes (1992) remarked:

One way to describe the process of reform currently going on in the former USSR is to say that private entrepreneurship is only being legalized or tolerated or encouraged. This new toleration of market-like activity takes place in the context of a centrally planned economy, and one that is likely to remain centrally planned for a long time to come. (p. 140)

If the Russian schools are to have success in restructuring their curricula to support the policies and principles of a market economy, then the following changes must be made, not only in the schools, but also in the minds of educational administrators:

1. School teachers and administrators must see their duty clearly in dedicating resources and curriculum design to market principles.
2. The concepts of honesty and good faith must be promoted in the classroom (Nazimov, 1993).
3. A new work ethic must be encouraged among youth. Sandi (1992) believed that the worsening social conditions in Russia have led young people away from a dedication to duty in their work: "Apathy is encouraged by the old structures and residential 'nomenklatura' (Communist Party bureaucracy). The fight for everyday subsistence, added to low wages, inflation, and shortages keeps people occupied mostly with the material aspects of life, sometimes with mere survival" (p. 110).
4. Russian secondary schools must be linked with institutions of higher education and foreign concerns (Kitaev, 1993).
5. Joint ventures with foreign companies that will hire Russian youth and mentor them in market practices must be attracted (Brock, et al., 1994).
6. System of on-the-job training (OJT) must be developed that will link students with employers (*Pravda*, 1992).
7. The social prestige and wages of teachers must be raised in order to have them stay in education and contribute to reform. "For the last two years, salaries in the informal [private] services sector have increased 30–50 times, in industry 10–30 times, in agriculture 10–15 times, whereas in the areas of public education, health care, science, and culture financed by the governments only 3 times" (*Poisk*, 1992, p. 13). Note: Many students in the secondary and college classes in Russian institutions and academies can earn more in the informal sector, or through self-employment during their free hours, than do their professors (Kitaev, 1993).
8. The Duma (Russian parliament) must be encouraged to draft new legislation that will promote the study and development of new curricula in support of the market system (Shipunov, 1993).

Change is more often than not a painful thing. The ideas proselytized over the 75-year reign of Soviet direction cannot be overcome

in a day. And so, the ideas concerned with establishing subjects and attitudes toward market economy practices will very likely take many years for teachers, administrators, and the community to accept. While the prospect of a better economical system and social prosperity are attractive incentives to encourage the adoption of a market system in Russia, there will be a price to pay. Unfortunately during these years of transition, Russia will have to face a problem that most fledgling democracies face—a generation of disenfranchised youth. As Kovaleva (1994a) stated:

Today, the system of education enjoys a relative independence and stability, but it is in conflict with society, which has changed the guidelines of its development. The crisis in education that Russia is now going through is deep-seated and multifaceted. And almost all its characteristic features have an adverse impact on young people's situations. (p. 8)

### THE REFORM OF VOCATIONAL SCHOOLS

The system of education in Russia changed little through the Soviet era. Children began their formal education at age seven when they were admitted to the first grade. Upon entry, students were assigned to groups and stayed with the members of their group through graduation in high school at the end of the 10th grade. Since 1992, some efforts have been made to lower the entry age of students to six years of age and lengthen the graduation date by adding an 11th grade to the secondary school. Despite these changes, much of the Soviet school system remains in place in Russia today.

A student may leave school after the eighth grade and enter the professional technical school (PTY) where they continue in general education courses and are trained in what we would term a traditional trade: carpentry, plumbing, machining, etc. Students who wish to complete their secondary education are free to do so provided they are able to pass through the grades as any student in the West would do. Following graduation from the secondary school, students may apply to the *teknikum* (vocational school) where courses in general education continue and students participate in vocational education courses aimed at training management position personnel. A student may also apply to the college or university of their choice following graduation from secondary school; however, entrance to institutions of higher education are competitive and students are ranked for admission based on the results of the entrance exams. For those who wish to continue their

education but fail to be admitted to the university, the *teknikum* is a popular option.

Courses in labor education (vocational education) begin for all Russian students in the fourth grade. Here the word *labor* is really a misnomer. The word in Russian used to describe these classes is *trud* (work). The best term we have in English closest to the truest translated meaning however would be *industrial arts*. Traditionally, girls learn to sew and cook while the boys busy themselves with basic carpentry work. Classes in both subjects progress through a series of more challenging projects through the eighth grade when all labor education is concluded in the public school. Students continuing on to the 9th and 10th grades are required to attend UPK (combined education and production) once a week for half a day. Several schools in each district are designated as the UPK centers, and students from all high schools may attend the UPK of their choice. UPKs offer a variety of vocational courses such as typing, sewing, computers, elementary production, and business education.

Beginning in 1977, the new Russian Constitution specifically mentioned that all students in the U.S.S.R. would receive a full secondary education. The term *full* meant that all education was to include the vision of Lenin and Khrushchev and incorporate vocational education as an equal partner in academia with the classical curriculum. General school completers (not students in the PTY) were to have "come near to mastering a specific occupation" by the time of their graduation from high school. Toward this end all labor training in the last two years of school was to be doubled in an effort to meet the demands of a large number of people retiring from the workforce at that time. In actuality all labor training hours did go up in the secondary schools, and even began to provide the skills necessary to students that would allow them to successfully enter the workforce immediately following graduation. But, the move toward more labor training made it awkward to match the secondary school curriculum with the entrance demands of the universities. Efforts to coordinate the curricula of both types of institutions proved unworkable because each level of education saw its mission in a different light. The result was that the secondary schools reverted back to the past classical curriculum (Dunstan & Suddaby, 1992).

In addition to traditional education in the primary and secondary schools, many government ministries began to offer UKK (continuing education) courses related to their func-

tion in night schools in an effort to upgrade workers already employed in industry. The goal of the UPKs and the UKKs (ministry courses) was to provide a link between education, business, industry, and future need. Such efforts to coordinate vocational education to meet the needs of a social problem sparked some hope among educators and government officials alike that such a union would help to promote a new kind of vocational training—polyfunctional training—in the near future. Such a polyfunctional approach would hopefully provide:

1. All school students with labor training (industrial arts) and primary vocational training (job skills) while in the public school system.
2. Primary and secondary (beginning and advanced) vocational-technical and specialty education of young people at the PTY or *teknikum* levels simultaneously. (Note: Students who leave the eighth grade to enroll in the PTY may advance to the *teknikum* upon graduation from the PTY since they also continue in general education that is parallel to those who remained in the high school.)
3. External studies as a method of obtaining or continuing primary and secondary vocational education for young people and adults.
4. Post-diploma upgrading of qualifications of workers and middle-link specialists.
5. Vocational retraining of adults at the request of employment services, direct contracts, and citizens. (Note: Russia opened its first unemployment center in 1992.)
6. Prevocational courses in "crafts" for home and leisure activities: gardening, sewing, pattern-making, cooking, household repairs, etc. (Novikov, 1994).

This move to reform vocational programs at all levels of education has been well supported among academicians in recent years. In 1992, Shipunov advocated a restructuring of the various school levels and the introduction of a new type of school:

It is consistent with the logic of the shaping of the system of continuous education and not only calls for retaining the secondary specialized educational institutions of the traditional type but also the creation of different kinds of educational complexes, including general education schools, vocational-technical schools, *teknikums*, and higher educational institutions. We might provisionally call this practice "waste-free technologies in public education." The training cadres in the complexes should be provided in accordance with coordinated syllabi and curricula and be designed to compress the training timeframes, encourage students' successful studies

and talents, and individualize the teaching-upbringing process, and so on. (p. 2)

It should be noted that the reforms presently being instituted in vocational-technical education did not come so much as a result of the reform movement associated with schools moving toward market and business education as it has from industrial need. Labor statistics put forward by Nazimov (1990) indicate some interesting figures in regard to machine tool operators. Throughout the former republics of the U.S.S.R. there are only 60 machinists for every 100 machines in working order.

Consequently, forty machine tools are standing idle even during the first shift, substantially reducing the overall effectiveness of labor as well as our well being. About 1,100 enterprises in Moscow are in need of machine-tool operators, yet all the city's vocational-technical schools are turning out only a little over 900 per year. This adds up to about 0.8 machine-tool operators for every enterprise, although most of them need many more cadres, numbering in the hundreds. (p. 7)

Paralleling this need for trained workers is the need to provide students with opportunities to study. As of 1991, there were 4,300 institutions throughout Russia providing courses of instruction in vocational-technical education. Student enrollments in these courses were approximately 2 million. Daytime vocational-technical institutions were distributed as follows: 1,380 were designated for industry; 1,090 were for agriculture; 248 concentrated on transportation and communications; 779 were for construction; 181 taught trade and public food services; and 136 institutions specialized in housing, municipal, and consumer services.

While these figures may seem impressive, the vocational-technical education schools are still dedicated to meeting the needs of only state-run enterprises. Due to the specific job demands of state-run organizations, courses are often so narrow and specialized in their scope that they are not always relevant to jobs in the private sector. Indeed, few courses taught at the vocational-technical schools lead to any jobs in the new market place. This has led to high unemployment among the young because state jobs are limited in number. Coupled with the fact that only 10% of graduates from the high school are oriented for entrance at a vocational-technical school due to the continued policy of preparing students for college, approximately 70% of the young people in Russia are entering industrial jobs with little or no skills (Sistema, 1992).

As we have seen, there are schools established that teach trades, schools that prepare entry managerial employees, ministry-run training programs, and schools that meet the needs of state-run institutions. There has even been a call to revamp the school system by coordinating courses between industry and education. What then is truly needed in the reform of vocational-technical schools in Russia? Perhaps Kovaleva (1994b) summed up the direction that vocational education should head in Russia:

What is needed is to promote ongoing changes in the structure of vocational-technical education, to revise the network of vocational-technical schools and *teknikums* and the list of basic occupations, to create a rational typology of them by regions, and to develop new types of vocational-technical schools (higher vocational-technical schools, technical lyceums, farming schools, commercial schools, municipal colleges, and so forth). The system of vocational education ought to be geared toward preparing structural shifts in the national economy, formulating a new kind of economic education as a vehicle of market literacy, developing education for individual farming, and creating a system of retaining of cadres to deal with the anticipated structural unemployment. (p. 83)

## TODAY AND TOMORROW

In the space of a dozen short years, we have witnessed a nation's attempt to totally reverse a political course it embraced for 75 years, establish an entirely new economic structure, reconstruct its educational system, and begin an effort to move ahead into the waning years of the 20th century in order to create a technological society that will parallel the West. Obviously, this article can only present some salient points of a gigantic effort. A complete review would require hundreds of volumes.

What we will witness in the next decade is anyone's guess. During my stay in Russia, I shared life experiences with Communist leaders; experienced hyperinflation, the threat of civil war, unemployment, and elevated crime rate; and observed the homeless, obsolete medical practices, and the introduction of computers in the public schools.

Under the reforms that I believe will undoubtedly continue in Russian schools, we will see a further restructuring of the types of schools that young and old alike will attend. The "commune movement" (work performed by collective units such as small towns, farm groups, etc.), which is again championing the work of Krupskaya and Shatsky in an effort to educate an "all-round child," has attracted a certain following. Russian schools have now returned much of the authority they once had

in shaping the mind and character of students back to the home and have asked parents to become partners with them in education. We are now seeing a move afoot to have schools meet more of their own financial needs by making better links with industry and business in cooperative projects. And there is a rebirth of new organizations whose goal is to promote the education of all classes of Russian society. But, perhaps the most exciting sign of reform of Russian vocational education is the birth of the private vocational institution. Hundreds of these private schools have sprung up throughout the nation since 1992. Indeed, any visitor to Russia cannot escape the posters plastered on the walls of buildings, fences, and light posts, which invite students to attend a wide variety of classes. There is little doubt that these schools are making a substantial contribution to the nation's workforce by providing better trained workers in business and service positions as many foreign companies are eager to hire Russian workers upon completion. One of the reasons for the success of these schools lies in the fact that each institution concentrates on one type of course such as business English, office management, or computer skill training and can therefore dedicate all their resources in that direction. Russia's continuing experiment in social change will certainly be interesting to follow. Undoubtedly there will be a cost that is as yet

undetermined.

If Russia is to achieve its goal of raising its economy and standard of living for all Russians, then it will have to concentrate on issues within its borders, look for ways to have Russian citizens improve their nation's social structure, and promote a sense among the electorate that the problems which afflict Russia must be solved at home before any attempt can effectively be made to participate technologically on a global basis. In a speech delivered October 14, 1997, Mikhail Gorbachev told students at Indiana University of his concern for conditions within his homeland as we enter a new century where the globalization of resources and information transfer will only increase. Those nations that cannot create a solid technological foundation within their own borders will be doomed to stay second-class citizens in the world. As he stated, "To most of us, global issues are too far away or too great to be the focus of our immediate interest." What is needed in Russia now is a concentration on domestic issues, a need to organize efforts for the betterment of society within Russia. Education will help achieve that goal.

Charles Dickens (1898) wrote at the beginning of *A Tale of Two Cities*, "It was the best of times. It was the worst of times..." (p. 1). I think those words could easily be describing the Russia we know today.

## References

- Brock, J., & Thielemann, F. (1994). Organization and management of German-Russian joint ventures. *International Journal of Technology and Management*, 9(8), 864–865.
- Dickens, C. (1898). *A tale of two cities*. New York: Charles Scribner's Sons.
- Dunstan, J., & Suddaby, A. (1992). The progressive tradition in Soviet schooling in 1988. In J. Dunstan (Ed.), *Soviet education under perestroika* (p. 6). London: Routledge, Chapman, & Hall.
- Kitaev, I. V. (1993). Current developments in the former USSR labour market and their interaction with the education system. *Russian Education and Society*, 35(3), 8–30.
- Kovaleva, A. I. (1994a). The crisis in the system of education. *Russian Education and Society*, 36(12), 8.
- Kovaleva, A. I. (1994b). Krizes sistemy obrazovaniia [The crisis in the system of education]. *Sotsiologicheskie Issledovaniia [Sociological Research]*, 3, 83.
- Nazimov, I. N. (1990). Trud shkol'nikov v usloviakh perekhoda k rynochnoi ekonomike [School students' labor under conditions of the transition to the market economy]. *Shkola i Proizvodstvo [School and Production]*, 11, 7.
- Nazimov, I. N. (1993). School students' labor under conditions of the transition to the market economy. *Russian Education and Society*, 35(1), 59–67.
- Novikov, A. M. (1994). Vocational education in the region: Problems and prospects. *Russian Education and Society*, 36(11), 45–46.
- Pogodzinski, J. M., & Antes, C. (1992). The transition from central planning to a market economy: A computable general equilibrium model. *Economic of Planning*, 25(2), 140.
- Poisk* [Search]. (1992). P. 13.
- Pravda* [Truth]. (1992, April 4). P. 1.
- Sandi, A. M. (1992). Restoring civil societies in central and eastern Europe. *Futures*, 24(2), 110.

Shipunov, V. G. (1992). Teknikumi I nyochnaia ekonomika: smozhet li sistema zashchitit 'bezrobotnogo' tekhnika? [Scientific economy in the technical school: Will the system defend the jobless technician?] *Srednee Spetsial'noe Obrazovanie [Secondary Specialized Education]*, 9, 2.

Shipunov, V. G. (1993). Technicums and the market economy. *Russian Education and Society*, 35(2), 39–42.

*Sistema obrazovaniia Rossiiskoi Federatsii* (st. 7) [The System of Education in the Russian Federation (p. 7)]. (1992). Moscow.

